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10/537,724	06/07/2005	Patrice Bujard	SE/2/22813/A/PCT	5472
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JoAnn Villamizar Ciba Corporation/Patent Department 540 White Plains Road P.O. Box 2005 Tarrytown, NY 10591			FRAZIER, BARBARA S	
			ART UNIT	PAPER NUMBER
			1611	
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			06/09/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

andrea.dececchis@ciba.com
deborah.pinori@ciba.com
sonny.nkansa@basf.com

Office Action Summary	Application No. 10/537,724	Applicant(s) BUJARD, PATRICE	
	Examiner BARBARA FRAZIER	Art Unit 1611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-21 is/are pending in the application.
- 4a) Of the above claim(s) 6-8, 11 and 16-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1-8 and 10-21 are pending in this application. Claim 9 stands canceled.
2. Claims 6-8, 11, and 16-21 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 6/10/08.
3. Claims 1-5, 10, and 12-15 are examined.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. **Claims 1-3, 5, 10, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al (US Patent 5,624,486).**

The claimed invention is drawn to an aluminum flake comprising (A1) a layer consisting of SiO₂, (B) a layer consisting of aluminum on the layer (A1) and (A2) a layer consisting of SiO₂ on the layer (B), according to the limitations of claim 1 (see claim 1).

Schmid et al teaches multiply coated plateletlike metallic substrates, described as "luster pigments" (col. 2, lines 40-45), comprising a first coating layer consisting essentially of silicon oxide (abstract). Suitable substrates are in particular aluminum (col. 3, lines 33-36). The coated layer is preferably silicon oxide (col. 4, lines 6-8); SiO₂

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is exemplified (see Examples). The thickness of the coated layer is preferably from 50 to 600 nm (col. 4, lines 9-10). Schmid et al further teach that the coated layer determines the hue and color play of the pigments according to its thickness (see col. 4, lines 10-15).

Schmid et al do not specifically teach the SiO₂-coated aluminum substrate having the layer thickness from 250 to 350 nm.

However, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to form SiO₂-coated aluminum substrates having the layer thickness from 250 to 350 nm; thus arriving at the claimed invention. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select SiO₂-coated aluminum substrates, having a SiO₂ layer thickness from 250 to 350 nm, from the pigments having a layer thickness of 50 to 600 nm taught by Schmid et al; thus arriving at the claimed invention. One skilled in the art would have been motivated to do so because Schmid et al fairly teach and suggest a range of layer thickness encompassing that of the claimed invention, and one skilled in art would be motivated to select a layer thickness from within said ranges by routine experimentation, in order to optimize the hue and color play of the resulting pigment.

Regarding claim 2, Schmid et al teach that the coating step of the substrate can be repeated one or more times (col. 7, lines 1-2); substrates having two coats of SiO₂ are exemplified (see Examples 2 and 8). Alternatively, Schmid et al teach that the pigments may additionally have a layer (C) composed of a metal oxide such as silicon

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oxide (col. 4, lines 51-62). Since the layer (C) is outward from the layer (A), it reasonably reads on the term "on" in claim 2.

Regarding claim 3, Schmid et al exemplify SiO₂ as the coating layer (see Examples).

Regarding the layer thickness of the coating on the aluminum substrate (claims 5, 12, and 15), Schmid et al teach that the layer thickness of the SiO₂ coating is preferably from 50 to 600 nm (col. 4, lines 9-10). This range encompasses that of the claimed invention, and one skilled in art would be motivated to select a layer thickness from within said ranges by routine experimentation, in order to optimize the hue and color play of the resulting pigment.

Regarding claim 10, Schmid et al teach that the pigments are advantageously useful for many purposes, such as the coloring of plastics, glasses, ceramic products, decorative cosmetic preparations and coatings and inks (col. 8, lines 42-49).

Regarding the layer thickness of the outer SiO₂ layer (claim 15), Schmid et al teach that the coating step of the substrate can be repeated one or more times (col. 7, lines 1-2); substrates having two coats of SiO₂ are exemplified (see Examples 2 and 8), and therefore one skilled in the art would reasonably expect each layer to have the same or similar thickness. Alternatively, Schmid et al teach that the pigments may additionally have a layer (C) composed of a metal oxide such as silicon oxide (col. 4, lines 51-62) having a thickness from about 1 to 400 nm (col. 4, lines 60-62). This thickness range encompasses that of the claimed invention, and one skilled in art would

be motivated to select a layer thickness from within said ranges by routine experimentation, in order to optimize the hue and color play of the resulting pigment.

Response to Arguments and Declaration

6. Applicant's arguments filed 2/17/09 have been fully considered but they are not persuasive.

Applicants argue that the layered flakes of the instant invention provide a specific and optimized solution to the problems associated with the contradictory demands of brightness and protection, stating that "metal flakes having a brighter appearance and a greater brilliance in comparison with the aluminum flakes known from the prior art can be obtained if the layer thickness of the SiO₂ layer is in the range of from 200 to 350 nm".

This argument is not persuasive because Schmid et al also teach that its pigments are termed "luster pigments". Since "luster" is synonymous with the term "brightness", one skilled in the art would reasonably expect that the pigments of Schmid et al would have a suitable degree of brightness for the pigments disclosed, i.e., for pigments having a layer thickness of silicon oxide from 50 to 600 nm. Further, to select pigments having layer thickness of silicon oxide within said range would be within the purview of the skilled artisan.

Applicants argue that the pigments of US 5,624,286 are said to show not only a virtually unchanged strong metallic luster but also a strong interference color.

It is not clear if Applicants are trying to distinguish the pigments of Schmid et al from those of the claimed invention here, since Applicant's specification also teaches that the pigments of the claimed invention are used in the production of interference pigments (e.g., see page 1 of Applicant's specification).

Applicants argue that there is no guidance in US '486 as to what thicknesses of the silica layer are preferred for use in obtaining particular characteristics, that the Examples (of Schmid et al) contain no mention of what the thickness is of the layers produced therein, and that a "relatively thicker silica layer", 250-350 nm as compared to the 70 or more of US '486, can be used to provide good protection to the alumina flake while at the same time maximizing the brightness. Applicants have submitted a Declarative statement of Inventor Patrice Board to this effect. Applicants conclude that nothing in the disclosure of US '486 would provide enabling guidance allowing one to develop the specific bright metallic pigments of the instant invention without undue and excessive experimentation, and that the finding that a layer of this specific thickness maximizes brightness on top of providing protection to the aluminum flake constitutes significant and unexpected results.

Applicant's arguments and Declaration have been fully considered, but are not persuasive for overcoming the rejection. Applicant has not provided any objective evidence, either in the claims or in the specification, to demonstrate the claims that the pigments having the thickness of 250-350 nm exhibit "significant and unexpected results". Additionally, Applicants have not compared the pigments of the claimed invention with the closest exemplified pigments of the prior art, nor provided any

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objective evidence that the pigments of the claimed invention provide good protection to the alumina flake while at the same time maximizing the brightness, compared to the pigments of Schmid et al. Regardless, one skilled in the art would reasonably expect that pigments having such a thickness would exhibit a suitable degree of brightness, based on the disclosure of Schmid et al that said pigments are "luster pigments", and Applicants have provided no data to demonstrate that its pigments having the specific thickness range of 250-350 nm are unexpectedly superior to those of the prior art.

It is further noted that it is prima facie obvious to choose from a finite number of identified, predictable solutions, with a reasonable expectation of success. See MPEP 2143E. In the instant case, Schmid et al recognized the need for varying the thickness of the layer of silicon oxide in order to determine the hue and color play of the pigment (col. 4, lines 10-15), and identified the range of 50 to 600 nm as predictable, potential solutions to the recognized need, wherein one of ordinary skill in the art could have pursued the known potential solutions (i.e., pigments having a layer thickness within said range) with a reasonable expectation of success.

Therefore, it is the Examiner's position that the claims are rendered obvious.

7. Claims 4, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al (US Patent 5,624,486) as applied to claims 1-3, 5, 10, 12, and 15 above, and further in view of Coulter et al (US Patent 6,150,022).

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Claims 4, 13, and 14 of the claimed invention are drawn to the aluminum flake according to claim 1 or 3, wherein the layer thickness of the layer (B) consisting of aluminum is from 10 to 100 nm (claims 4 and 14) or from 30 to 50 nm (claim 13).

The invention of Schmid et al is delineated above (see paragraph 6).

Schmid et al is silent with respect to the thickness of the aluminum substrate.

Coulter et al teach metal flake based pigments having aluminum as the core reflector material (col. 6, lines 34-37) useful in inks, paints, glass, ceramics, and cosmetics (col. 5, lines 58-61) with silicon oxide coatings (for example, see col. 9, lines 30-41 and col. 10, lines 40-52). Coulter et al further teach that the thickness of the aluminum reflector material can be in a range from about 40 nm to about 150 nm, although this range should not be taken as restrictive and can be adjusted according to the desired reflectance, e.g., opaque vs. transparent (see col. 6, lines 50-66).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select aluminum reflector material having the thickness taught by Coulter et al for the pigment taught by Schmid et al; thus arriving at the claimed invention. One skilled in the art would have been motivated to do so because silicon oxide-coated aluminum flakes having an aluminum layer thickness of 40 to 150 nm are known to have improved secular reflectance characteristics, as taught by Coulter et al (see col. 5, lines 44-46). Additionally, the aluminum layer thickness taught by Coulter et al overlaps that of the claimed invention, and one skilled in the art would be motivated to select a layer thickness of aluminum from within said ranges by routine experimentation, in order to optimize the desired reflectance of the resulting pigment.

Response to Arguments

8. Applicant's arguments filed 2/17/09 have been fully considered but they are not persuasive.

Applicants argue that there is no direction given in US '370 as to the thickness of the dielectric layer and thus the fundamental deficiency of US 5,642,486 as detailed above is not remedied.

This argument is not persuasive because the claims are obvious over US 5,642,486 for reasons stated above (see paragraph 6). Since Applicants do not present any other arguments apart from those detailed above, claims 4, 13, and 14 are also obvious for reasons stated above.

Conclusion

No claims are allowed at this time.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA FRAZIER whose telephone number is (571)270-3496. The examiner can normally be reached on Monday-Thursday 9am-4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sharmila Landau can be reached on (571)272-0614. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BSF

/Sharmila Gollamudi Landau/

Supervisory Patent Examiner, Art Unit 1611